

CLAIMS

1 An optical holographic device for recording a data page in a holographic medium
(106), said device comprising means (100) for generating a signal beam, means (201) for
5 modulating the phase of said signal beam so as to encode said data page and means (102,
107, 108) for interfering said modulated signal beam with a reference beam inside said
holographic medium.

2 An optical holographic device as claimed in claim 1, further comprising means (103)
for modulating the amplitude of said signal beam.

10 3 A holographic medium comprising at least one phase-modulated data page.

4 A holographic medium as claimed in claim 3, further comprising at least one
amplitude-modulated data page.

5 A holographic device for reading out a holographic medium as claimed in claim 3,
said holographic device comprising means (401, 402, 114, 403) for retrieving phases of
15 individual data bits of the phase-modulated data page.

6 A holographic device as claimed in claim 5, said device comprising means (100, 102)
for generating a reference signal, means (109, 111, 112, 113) for directing said reference
signal towards said holographic medium so as to generate a phase-modulated reconstructed
signal beam, means (114) for detecting said phase-modulated reconstructed signal beam,
20 means (401) for generating a probe signal and means (402) for interfering said probe signal
with the phase-modulated reconstructed signal beam before the latter reaches the detecting
means.

7 A holographic device as claimed in claim 6, further comprising means for calculating
a Fourier transform of a signal detected on the detecting means, said Fourier transform
25 comprising a central band and two side-bands, and means for calculating a backward Fourier
transform of at least one of the side-bands so as to retrieve phases of individual data bits of
the phase-modulated data page.

8 A holographic device as claimed in claim 6, further comprising means for varying the
phase of said probe signal so as to retrieve the phases of individual data bits of the phase-
30 modulated data page by means of a phase stepping procedure.

9 A method for reading out a holographic medium as claimed in claim 3, said method
comprising a step of retrieving phases of individual data bits of the phase-modulated data
page.

10 A computer program comprising a set of instructions which, when loaded into a processor or a computer, causes the processor or the computer to carry out the method as claimed in Claim 9.